

Notice of Allowability

Application No.

09/650,122

Examiner

Ram N Kackar

Applicant(s)

KYOGOKU ET AL.

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 9/30/2003.
 2. The allowed claim(s) is/are 1, 7 and 12-14.
 3. The drawings filed on 29 August 2000 are accepted by the Examiner.
 4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) The translation of the foreign language provisional application has been received.
 6. Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**
7. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 8. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No. _____.
 - (b) including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <input type="checkbox"/> Notice of References Cited (PTO-892) | <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____. |
| <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | <input type="checkbox"/> Other |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Katsuhiro Arai on 01/23/2004.

The application has been amended as follows:

----- Claim 1 has been amended as below:

A multi-chamber load-locking device for transferring wafers, said device having an interior divided into (i) an upper chamber and (ii) a lower chamber, and (iii) an intermediate section located between the upper chamber and the lower chamber, which is for loading/unloading wafers,
said device comprising

- (a) a single divider plate having an upper side and a lower side, both of which are for temporarily supporting wafers, said plate moving reciprocally between an upper position and a lower position, wherein the plate divides and seals the upper chamber from the intermediate section and the lower chamber at the upper position, and the plate divides and seals the lower chamber from the intermediate section and the upper chamber at the lower position, wherein each of the upper chamber and the lower chamber has a sealing surface where the upper chamber and the lower chamber are sealed with the plate, said sealing surface being formed by an O-ring;
- (b) a cylindrical cam structure co-axially linked to said plate, wherein said plate moves between the first position and the second position by the rotation of the cylindrical cam structure; and
- (c) a rotary actuator for driving and rotating the cylindrical cam structure, wherein said cam structure comprises

- (1) a cam cylinder having a cam groove which rotates with the rotary actuator, and
(2) a support cylinder having a cam follower being provided outside the cam cylinder, wherein the plate, the cam cylinder, the support cylinder, and the rotary actuator are co-axial, while the support cylinder is attached to the plate and does not rotate, wherein the cam follower is fitted in the cam groove and moves vertically when the cam groove rotates, said support cylinder, said groove spiraling around a circumference of the cylinder, said groove comprising
(I) an upper horizontal section for locking the plate at the upper position, where the cam follower is securely locked in the cam groove,
(II) a lower horizontal section for locking the plate at the lower position where the cam follower is securely locked in the cam groove,
(III) a straight middle section for moving the plate at a fixed rate,
(IV) an upper transition section connecting the upper horizontal section and the straight middle section for moving the plate at a rate lower than the fixed rate, and
(V) a lower transition section connecting the lower horizontal section and the straight middle section for moving the plate at a rate lower than the fixed rate, wherein the length of each section in a horizontal direction is (I)<(IV)<(III)>(V)>(II);
said device further comprising
(d) a vertical beam for supporting the support cylinder, provided in parallel to the axis of the support cylinder, and
(e) a sliding support which slides on the beam,
wherein said support cylinder is connected to the sliding support, and moves along the beam vertically when the cam cylinder rotates.

----- **Claims 2-6, 8-11 and 15-21 are cancelled.**

REASONS FOR ALLOWANCE

2. Claims 1, 7, 12, 13 and 14 are allowed.

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3. The following is an examiner's statement of reasons for allowance: Claim 1 is allowable over the prior art of record for the limitation of the rotary actuator and the cam structure being coaxial and the cam cylinder with groove being inside of the cam follower cylinder which is also the support cylinder. These limitations in the context of other limitations of the claim are not fairly suggested or disclosed in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571 272 1439. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK

P. Yassawand
primary Examiner
AV1763